

IS PROJECT REPORT/DOCUMENTATION EXPLAINED

The following are the sections expected on the report/ document for the IS projects.

A. Preliminary pages

The preliminary pages include title page, declaration page, acknowledgement (optional), abstract, table of content, list of table, list of figures and abbreviations/ acronyms.

See explanations below.

Note:

1. The preliminary pages (title page, declaration, abstract, list of tables, list of figures and abbreviations) are numbered as i, ii, iii etc. The rest of the proposal is number as 1, 2, 3, etc.
2. The numbering for the title page should not appear

Title page

This section should include the following:

- Title of the project

Title should contain key words (major variables, nature of research, target population) to give a clear, concise description of the topic, scope, and nature of the study (Van Dalen, 1979, in Creswell, 2009). It should generally describe the content and direction of your project.

E.g.: *Behaviour based Enhancement of Wide-Area Situational Awareness in a Distributed Network of CCTV Cameras*

- Admission number of the candidate
- Submission statement

E.g. IS project proposal submitted to the Faculty of Information Technology in partial fulfilment for the requirement of the degree of Bachelor of Business Information Technology of Strathmore University

- Date of submission

This should focus on the month and year when the proposal is submitted.

E.g. August 2015

NB: Ensure the information given is well balanced within the page.

Declaration page

Should have separate declaration for the candidate and the supervisor.

e.g.

I declare that this work has never been submitted for examination in any university

Admission No:..... Signature:..... Date:.....

I certify that this work is being submitted for examination with my approval

Signature:..... Date:.....

Abstract

- The abstract provides a summary of your work, and is typically about 150 words.
- It should address the problem tackled, the approaches used in coming-up with the solution and the key outcomes of your project.

Table of content

- The table of contents must include corresponding page number referencing each section.
- These pages are numbered in lower-case Roman numerals and counted.
- The page numbers in each table of content (TOC) should be hyperlinked to their targets (sections, figures, tables). Hyperlinked page numbers should work even in a PDF format document. If you are using Microsoft Word/Open Office Writer then strongly recommend using the TOC generation tool.

List of tables

- A page with a list of tables is required if tables are included in the document.
- The list must include the table number, title, and corresponding page number for each table.
- This page(s) is/are numbered in lower-case Roman numerals and counted.

Table of figures

- A list of figures page is required if figures are included in the proposal document.
- The list must include the figure number, title, and corresponding page number for each figure.
- The list of figures must be represented in the table of contents.
- This page is numbered in lower-case Roman numerals and counted.

Definition of terms, Abbreviations and Acronyms

- The terms are defined using the process for specification of concepts outlined in Rubin & Babbie (2011) and Creswell (2009). A nominal definition for each term is provided, and when relevant, an operational definition that specifies how the concept will be measured is also provided.”
- Definitions add precision to your study, helping your readers know how certain terms are being used in the study.
- **Define terms that someone outside the field may not understand and terms that have multiple meanings; consider defining terms introduced in your title, introduction, etc.**
- Definitions should be grounded in the literature (citation used) unless the term is “commonly understood” or if you have no source, but then re-consider if it should be a term you define (Theobald, 1991).
- Terms should be defined in one or more complete sentences, not phrases (Theobald, 1991).
- When defining terms that represent constructs that you will be measuring, indicate how you will be “operationalizing” them by stating the observable measure of those constructs; in other words, include an operational definition with your nominal definition. For example: “Critical thinking is the process of purposeful, self-regulatory judgment that drives problem-solving and decision-making (APA, 1990). For the purpose of this study, students’ scores on the Cornell Critical Thinking Test, Level X (Ennis, Millman, & Tomko, 1985) will serve as the observable measure of this construct.”

Chapter 1

Introduction

Note: Chapter 1 in the report is written in the past tense.

1.1. Background to the study

- Sets the stage for the entire study, providing the reader with the background information for placing the study into a context of related research and justifying to the reader that a study is needed (Wiersma, 1995).
- Typically includes (Creswell, 2009):
 - a “hook” to create interest in the study
 - description of the problem or issue leading to the study (should be documented, not just your opinion that a problem exists)
 - brief discussion of the literature about the problem and/or deficiencies in past literature, placing the study within the larger context of the research literature or within the ongoing scholarly dialogue (not as in depth as in Ch. 2 and often by referencing groups of studies)
 - discussion of the significance of the study for a specific audience (note: this could be a separate section at the very end of this chapter)
- This section could include conceptual underpinnings, such as the conceptual framework or theoretical base from which your topic evolved (a rational/theoretical/research-based model from which your topic emerged).

1.2. Problem statement

In general the problem statement will *focus on the short-comings apparent in current organization or system to be addressed by the project*. More specifically it should follow the outline below:

Element	Description
The problem of ...	Describe the problem
Affects ...	Identify stakeholders affected by the problem
And results in...	Describe the impact of this problem on the stakeholders and business activities.
Benefits of a solution ...	Indicate the proposed solution and list a few key benefits as a consequence of the proposed solution

1.3. Objectives

There are two part to this section; general objective commonly referred to as aim and specific objectives.

The general objectives should:

- Start with “The purpose (or intent) of this study was....”
- The purpose statement can also incorporate the rationale for the study, alluding to the significance of your study; or this rationale can be part of the background and/or significance sections (Pajares, 2007).

1.3.1. From the broad, general objective, the researcher narrows the focus to specific questions (objectives) to be answered/accomplished. Specific objectives helps to *identify the changes desired to be seen upon completion of the effort*. They should be incremental and stated in declarative form (Krathwohl, 1988 in Creswell, 2009). They should be reflective of the title and problem statement

E.g.:

Behaviour based Enhancement of Wide-Area Situational Awareness in a Distributed Network of CCTV Cameras

1. To analyse models for robust detection and tagging of people over wide areas of different physical sites captured by a distributed network of cameras.
2. To develop a model for global situational awareness enhancement via correlating behaviours across a network of cameras located at different physical sites, and for real-time detection of abnormal behaviours in public space across camera views.
3. To develop a prototype for automatic selection and controlling of Pan-Tilt-Zoom (PTZ)/embedded smart cameras (including wireless ones) in a surveillance network to 'zoom into' people based on behaviour analysis using a global situational awareness model therefore achieving active sampling of higher quality visual evidence on the fly in a global context.

Note:

1. Ensure that your objectives are feasible, clear, significant, and ethical.
2. They should be numbered as in the case above.

1.4. Justification for the study

- Aim for a clear and compelling rationale for the study; how/why is your study significant and important?

- Who (what individuals or groups) can use this new knowledge or information yielded by the research to change or improve the present situation? How will the study contribute to the improvement of the profession? To future research? To policy or practice improvements?
- Can include the documented arguments of others (expert opinion) who call for an investigation of the problem.

1.5. Scope/Delimitation

- Think of this as setting boundaries around something, such as delimiting the population to outreach practitioners in Nairobi. This is where you explain what you are not doing, but limit your delimitations to the things that a reader might reasonably expect you to do but that you, for clearly explained reasons, have decided not to do (Parjares, 2007).

Chapter Two

Literature Review

- The literature review is typically written in past tense (e.g. "Smith showed...") or present perfect tense (e.g. "Researchers have shown..."). Consistency in tense within a paragraph and throughout the chapter is important. In most cases, use only last names for persons/authors/researchers noted in your literature review; do not use position or academic titles. Avoid overuse of directly quoted material, aiming to paraphrase and cite rather than directly quote (Theobald, 1991). Also aim to avoid citing studies referenced in other studies; instead, find and cite the direct source. For example, not "Johnson (1999), as cited in (Smith, 2001);" instead "Johnson (1999) found..."
- This chapter often begins with a brief introduction to remind readers of the background and purpose you presented in Chapter 1, followed by a description of the form of this chapter in terms of purpose, scope, and sequence/organization (Theobald, 1991). Often this is done through an overview of the sections your literature review will contain and their relevance to the research question. Chapter 2 often concludes with a summary, synthesizing and highlighting the key points of your literature review. In a technical write-up it is a conceptual framework which can be captured ably using an architectural design (*Explain the technology to be used in the project. Describe hardware, software, or network components as relevant and as understood at this time. Draw a high-level architecture diagram to illustrate the proposed system components and the relationships between them*) or block-diagram.
- The body of Chapter 2 expands on the Background section from Chapter 1, further describing and framing the need for the proposed research (does this project fill in some gaps in knowledge, test a theory, replicate research, etc.). In addition, the literature review provides a review as to what is known regarding your topic and alternative points of view regarding your topic. Think of the literature as accomplishing the following things:
 - Sharing results of other studies closely related to your study;
 - Relating your study to the larger, ongoing dialogue in the literature about a topic (Marshall & Rossman, 1989); and
 - Providing a framework for establishing the importance of the study, as well as a benchmark for comparing the results of the study (Pajares, 2007).
 - Presents the foundational theories that support your study/concept.
 - Providing the methodology on how the problem can be tackled.
- Chapter 2 reports on the literature, but more importantly, is written to analyze what is found in the literature (comparing and contrasting findings, for example). Aim to communicate to the reader that you have a comprehensive grasp of the field and are aware of important and recent substantive and methodological developments relating to your topic (Parjares, 2007). Avoid statements that imply little has been done, little is known, or that what has been done is too extensive to summarize, as this implies that you are not really familiar with the literature (Parjares, 2007).

- Keep in mind that much of what you find as you review the literature and what you write in Chapter 2 will be relevant to other chapters, such as Chapter 1 (Background), Chapter 3, and Chapter 5 (as comparisons are made between your results and those from studies in your literature, and as you interpret what you found in the context of prior research) (Theobald, 1991).
- The easy way to write a good chapter 2 is to follow the concept of objective-mapping. This implies that specific objectives are directly mapped onto subsections of chapter 2. This will focus the study to avoid unnecessary information from this chapter.

Sample of the Structure of chapter 2 using the title and objectives given above

Chapter Two

Literature Review

1.4.Introduction

1.5.Models for robust detection and tagging of people over wide areas of different physical sites captured by a distributed network of cameras

1.6.Model for global situational awareness enhancement via correlating behaviours across a network of cameras

1.7Automatic selection and controlling of Pan-Tilt-Zoom (PTZ)/embedded smart cameras (including wireless ones) in a surveillance network

1.8.Architectural Design of the proposed automatic selection and controlling of Pan-Tilt-Zoom (PTZ)/embedded smart cameras (including wireless ones) in a surveillance network

Chapter Three: Methodology

Notes:

- The methodology for the report is typically written in past tense.
- Chapter 3 should be detailed enough to allow replication (Wiersma, 1993).
- Chapter 3 begins with an introduction, where you briefly remind the reader of the purpose of the study and the research objectives. This introduction can be used to describe the overall paradigm and rationale for it (system development methodology), as well as to describe the overarching research purpose.
- Describe the system development methodology which is generally a framework that is used to structure, plan, and control the process of developing an information system e.g. Agile Software Development, Dynamic Systems Development Model (DSDM), Extreme Programming (XP), Joint Application Development (JAD), Rapid Application Development (RAD) etc.
- Describe also any tools and technologies you used in the project. This should not be a text book like description of the technologies. Filling up a report with descriptions of tools and technologies that are readily available in books or published literature does not add any value to the report. You must provide some discussions that demonstrate that you have performed some critical analyses of the subject matter.
- It is important that you describe how the tools and technologies are being applied to the project you have completed. You should include some discussions on evaluation of alternate tools and techniques, provide comparisons and state rationale for choosing the ones you did.
- It should clearly cover how the various activities were done: System Architecture, Design, Implementation and Testing.
- There is no need to give long theoretical explanations about “methodologies”.
- Methodologies used should be referenced to the main literature on that subject.
- The reasons why a certain methodology is used should be given.
- There should be “original” work by the student in this chapter. (This is more about “how” you did your work than about “what” you did).
- To demonstrate your mastery in software Development your project should follow a standard software development process, rather than an undefined or ad hoc process. For instance, if you choose an agile process, then be sure to describe the process you followed for making the multiple deliveries. Doing an iterative development and making multiple deliveries is a key practice in any agile process; if you did not do this then the process cannot be called agile.

Chapter Four: System analysis and Architectural Design

- This chapter describes on how system analysis and design were conducted.

4.1. Introduction

- The introduction section emphasizes on the objectives of the study and offers a brief highlight on the techniques used to carryout system analysis and design.

4.2. System analysis

- Systems analysis is a process of collecting factual data, understanding the processes involved, identifying problems and recommending feasible suggestions for improving the system functioning. This involves studying the business processes, gathering operational data, understanding the information flow, finding out bottlenecks and evolving solutions for overcoming the weaknesses of the system so as to achieve the organizational goals. System Analysis also includes subdividing of complex process involving the entire system, identification of data store and manual processes.
- The major objectives of systems analysis are to find answers for each business process: What is being done, How is it being done, Who is doing it, When is he doing it, Why is it being done and How can it be improved? It is more of a thinking process and involves the creative skills of the System Analyst. It attempts to give birth to a new efficient system that satisfies the current needs of the user and has scope for future growth within the organizational constraints. The result of this process is a logical system design. Systems analysis is an iterative process that continues until a preferred and acceptable solution emerges.
- In general, system analysis describes how you did requirements elicitation, conducted the analysis, and arrived at the specified requirements. Therefore, provide analysis models, not just words. Some suggested model elements are: use cases, activity diagrams, sequence diagrams, and domain models. The analysis models should express the system architecture and the top level behavioral requirements. Don't provide a superficial model with just one or two context level use case diagrams.

4.3. System Design

- Based on the user requirements and the detailed analysis of the existing system, the new system must be designed. This is the phase of system designing. It is the most crucial phase in the developments of a system. The logical system design arrived at as a result of systems analysis is converted into physical system design. Normally, the design proceeds in two stages: Preliminary or General Design and Structured or Detailed Design. For the purpose of this project, you will be expected to come-up with a detailed or structured design. A structural design is a blue print of a computer system solution to a given problem having the same components and inter-relationships among the same components as the original problem.

Input, output, databases, forms, codification schemes and processing specifications are drawn up in detail. In the design stage, the programming language and the hardware and software platform in which the new system will run are also decided.

- Generally describe the architectural design model and the detailed design model. Always, discuss the alternatives considered and the rationale for the choosing the solutions you adopted. Describe the architectural and detailed design models in a disciplined manner using both text and comprehensive design models, ideally expressed in UML. Use of UML is highly recommended over using ad hoc or older modeling notations. Suggested UML design model elements are: class diagrams, interaction diagrams, structured classes, components, subsystems, and deployment models. Produce the model diagrams with a modern CASE tool, not drawing tools. Provide a comprehensive design model with sufficient design information, not just one or two top level model diagrams. Note that to describe a design adequately you must describe both its static view and the dynamic view. The static view includes elements such as: classes with inheritance and aggregation, structured classes, interfaces, components, subsystems, and deployment. The dynamic view includes: activity diagrams, sequence or communication diagrams, and the state model, when appropriate. Remember that, in most projects, the design model is the main aspect of your work, and it deserves a good deal of your attention.
- If a database was used, there should always be a discussion on the design supported at least by an ERD. The database schema should be given (or, at least, included in the Appendix).
- A proper system modelling should be indicated using class and sequence diagrams.
- The outcome under system design may include:
 - DFD
 - ERD
 - Database schema
 - Class Diagram

Chapter Five: System Development, implementation and Testing

5.1. Introduction

- It describes briefly what the main objective was and gives a highlight on how the solution was developed, implemented and tested.

5.2. System development

- It describes the development process you followed. To demonstrate your mastery in software development, your project should follow a standard software development process, rather than an undefined or ad hoc process. Generally, a process framed on the agile development philosophy works well for projects in software development. If you choose an agile process, then be sure to describe the process you followed for making the multiple deliveries and demonstrations to your supervisor. Doing an iterative development and making multiple deliveries is a key practice in any agile process; if you did not do this then the process cannot be called agile.
- Discuss the reasons why you chose the specific programming language and development tools.

5.3. System Implementation

- Describes the overall strategy for implementation tasks, such as incremental builds, risk mitigation measures.
- Discuss the implementation platform.
- The functionalities of the various systems implemented should be clearly stated.
- Discuss strategies for reuse of existing products and components. Use of design patterns in the implementation demonstrates sophistication in the subject matter is highly encouraged.
- Generally, you do not need to provide source code in the report, unless that code is central to your report, e.g. if you created new design patterns and need to describe the logic of those design patterns using code (to enhance your explanation). However, note that describing design logic using detailed design models demonstrates a higher level of expertise than using code to do the same.

5.4. System testing

- Describe how testing and validation tasks were performed.
- Describe the plans and strategies used in unit testing, integration testing and system testing.
- Address regression testing if possible.
- Describe the test plans and provide test procedures used for testing the critical functions.
- Describe the test tools you used. Whenever possible, involve someone else, such as friends and colleagues, in the testing and verification process, and include their comments and observations.
- Provide test metrics, such as number of defects found, defect density of the discovered defects, code and branch coverage metrics. Ideally there should be an analysis describing the defect injection and discovery characteristics, such as: types of defects, injection phases and discovery phases.
- (Optional) If your project serves an external customer then you must involve end users, selected by the customer, in the testing process. Examples of such projects are: community service projects, project from your place of work, or projects with an external sponsor. NB: For graduate projects involving the end users in the testing serves as an acceptable validation process.
- In this section include the software that were used in the development of the proposed system. Describe the role each will played in the development of the system.

It will be interesting to include the Software testing strategies that were used e.g.

- Developmental (check program logic)
- Alpha testing (simulated data)
- Beta testing (real data)

Note: The big question here is how was the solution constructed?

During the system development and implementation the system specifications are turned into a working system that is tested and put into use. System development and implementation phase includes coding, testing and installation. It also involves taking all of the detailed design documents from the design phase and transforming them into the actual system.

5.5. System Outcomes

- List outcomes produced for the project. For instance, indicate the key system modules.
- System documentation, training, and support are vital deliverables and they include:
 - User and reference guides
 - Installation procedures and troubleshooting guides

Chapter Six: Conclusion

- In the conclusion chapter summarize the problem you set out to solve, describe what you have achieved, and prospect for future work i.e.

6.1. Conclusion

Refer back to the problems you encountered and how you overcame those, or found workarounds. Always refer back to the main body of the report for the detailed descriptions; the conclusion section should not contain detailed descriptions of the problems or the solutions.

6.2. Recommendation

Address how you have met the original objectives of the project (i.e. proposal contents).

6.3. Future Work

Discuss potential future work.

Bibliography

1. Every citation made in the body of the report must appear in the Bibliography. Similarly, every item listed in the Bibliography must be cited in the body of the thesis.
2. The panel may use the list of references as a yard stick to assess how well you have researched the field before setting out to do your project. The panel may look for completeness and also accuracy of the references. Error in the bibliography will need to be corrected before a thesis is approved.
3. Follow a single standard method for citing and listing both the print references and the online references. There are many different formats for citing and listing references, such as: APA, MLA, ACM style, IEEE style, etc. For this report you will be expected to use APA format. Follow the link below for guidance:

<https://owl.english.purdue.edu/owl/resource/560/10/>

Note that there is a standard method for listing online references, listing just the URL is not sufficient.

4. Today, most print publications, such as journal articles and conference papers, also exist in the web, typically in digital libraries or in the author's web sites. When listing references to such printed sources, provide references to the original printed source, not the online sources.
5. In general, publications that are not peer reviewed, such as blogs, are not credible sources of reference. Citations from Wikipedia are marginally acceptable but should be avoided if possible. This is because the Wikipedia review process is not as well controlled as in professional journals and in proceedings from conferences organized by professional institutes. Technical publications from well-established and recognized organizations like IBM, Microsoft, Apple, Oracle, Motorola, etc. are generally acceptable.
6. You should have read every referenced item you list in the bibliography and every item in the bibliography should be appropriately cited in the body of the thesis.
7. If you used the Citation and Bibliography Tools, then you can auto generate the bibliography. This will save you a lot of work and time.

Appendix

- Will include materials relevant to the project but could not fit within the body of your report. They may include materials like permission to conduct study using organizational data/names, important code segments of the system etc.
- Use Appendices to present material that will interrupt the flow if included in the main body of the report.
- Typical contents of appendices include: Code, data tables, detailed analysis and design models. If a user manual is called for, then provide it in an appendix.
- If you have materials of different nature, they can be labelled as appendix 1, Appendix 2, etc. in order to have consistency. It should start on a new page of your proposal.

General Guidelines for the Report Content

1. There is no rule governing the length of a report. A report does not have to be 60 pages long! Do not “fill-up” a report with irrelevant material just to make it long.
2. Do not mix unrelated issues in the same chapter. For example, in the design chapter, do not discuss testing issues. One exception to this is when arguments are needed to justify actions related to the current topic.

Example: When a specific design decision was made to simplify some implementation related problem. In such a case, it is reasonable to discuss the relevant implementation issues in the design section.

3. In a report, every sentence should have a purpose and every sentence should say something relevant to the project work. Be succinct in what you write. Avoid vague rambling text.
4. Your report is a piece of scientific work. It should not contain any unsubstantiated opinions or claims. Every technical claim made or result cited must be substantiated with credible references, or result of some reasoned discussion contained in the report.
5. A report is not a platform for making speculative comments, or for making predictions that are not grounded in results from published scientific work.
6. A report should not have any tutorial text; it is not a text book. If a user manual is called for, then provide it in an appendix.
7. Throughout the report use standard software engineering or computer science terminology.
8. Provide definitions of uncommon terms in a glossary. See section on *Definition of terms, Abbreviations and Acronyms*
9. Use a consistent naming convention. Do not refer to the same concept or “thing” by different names in different parts of the report.

General formatting guidelines

1. Follow the style guidelines produced by the Graduate Studies, Research and International Programs (GRIP) office. The GRIP guidelines focus on the form, not the contents and have some strange rules, but you need to adhere to those rules.
2. Provide headings for all chapters, sections and subsections and prefix each heading with a section number. This is easy to do if you use a style based template in Microsoft Word or Open Office Writer.
3. For improved readability the headings should be left justified rather than center justified.

4. Number all figures and tables. It is best to use a localized numbering scheme where the figure/table numbers are prefixed with the section number. This makes it easy to locate the item when referenced from elsewhere within the document.

Examples: The two first figures in section 2.0 will be numbered Figure 2.0-1 and Figure 2.0-2. Similarly Figure 3.1-3 would be the 3rd figure in section 3.1. Table 3.3-3 would be the 3rd table in section 3.3.

5. Provide captions for all figures and tables. *Example:* Figure 3.3.1: The System Context Diagram. It is common for figure captions to appear below and table captions to appear above.
6. If you are using Word or Open Office Writer, then use styles to mark the figure and table captions. This will enable you to auto-generate the List of Figures and the List of Tables.
7. Figures, tables, and their associated captions should be centrally justified.
8. If you are providing a list of items, then use a numbered list, not bulleted list. It is easier to reference an item in a numbered list.
9. Follow a consistent method for citing references, in this case the APA style. If you are using Microsoft Word, or Open Office Writer, then consider using the Citation and Bibliography Tool. You will then be able to generate the bibliography automatically in APA style. There are many free online tutorials on how to use these tools; find one and learn to use them.
10. When cross referencing, instead of writing “As previously stated”, provide a cross reference number to the referenced section, figure, or table; one more reason to use the (Word/Writer) Cross Referencing Tool.
11. Expand all acronyms on first use. It is a good idea to list all acronyms in a list of abbreviations.
12. All figures and tables should be referenced in the body of the report using their captions. Be mindful of the language you use. When referencing a figure, write, “The initialization logic is illustrated in Figure 3.2-1: System Initialization” rather than “Figure 3.2-1 illustrates the initialization logic”. Why? A figure, by itself, does not “illustrate anything”, rather “something is illustrated in a figure”. Use a similar language when referencing a table. Picky, but precise.
13. If you need to include diagram or illustration copied from some other document, then cite the source with a reference number in the Figure caption and also in the text that introduces the diagram or illustration.

Example: Vincent reports the results from a study that examined the relationship between software structural complexity and software quality [31]. The relationship is illustrated in Figure 3.4-1: Design Complexity and Residual Defect Density.

The figure caption would read

Figure 3.4-1: Design Complexity and Residual Defect Density [31].

14. Do not copy and paste diagrams that are blurry. Redraw the diagram instead. You should cite references, even if you redraw the diagram, unless you make substantial changes. This guideline applies to all cut-and-paste items, including graphs, and tables. Do not include any art work, such as photographs, that are blurry, or difficult to interpret.

Writing style

1. Write short sentences in active voice in plain language. Each sentence should address a single topic.
2. Write short, focused, and coherent paragraphs. Each paragraph should have a clearly stated topic sentence that describes the main issue covered in the paragraph. The rest of the sentences should provide discussions on the topic sentence, or answer the question raised in the topic sentence.
3. Read each paragraph aloud and listen. Does it sound right? Is the sentence structure clumsy? Is it difficult to understand? Listen to the sentences as you read them aloud- would you speak like this when making a formal presentation in class? Revise and edit as needed.
4. Do a grammar and style check using one of the tools listed in [section 13](#)

General Issues

Critical analysis

Critical analysis skills are taught in critical thinking course and generally in all courses. The report demonstrating your culminating experience must exhibit your ability to do critical analysis. Evidence of critical analyses can be integrated directly into the various technical chapters describing analysis, design, implementation, and testing. In the technical chapters describe how you considered alternatives and selected the ones you did. Give rationale for the choices you made. A report must demonstrate that you are capable of making sound technical decisions based on results of critical analysis. Describe any technical problems you encountered and how you overcame those or found workarounds.

Take credit for your work

Throughout the report, and especially in the chapters describing analysis and design, clearly state what you have achieved. Take credit for successes; describe lessons learned from unsuccessful outcomes, including change of plan/approach etc. Address what would have happened if you were to use a different tool or technique. Address what

problems were caused by the need to use legacy products, if any. When appropriate, describe problems caused by the need to use specific tools, platforms, hardware, etc. With the benefit of the hindsight, discuss how you would do things differently. Suggest future work.

Some useful Resources

Style and Grammar Checker

1. "Writing Enhancement Software review" Retrieved: June 8, 2011. A good source for checking English grammar and writing style

<http://writing-enhancement-software-review.toptenreviews.com/>

2. WhiteSmoke Grammar tool

<http://www.whitesmoke.com>

3. English Software

<http://www.englishsoftware.org/>

Books and Articles on Thesis Writing

1. Trimble, John R. Writing With Style: Conversations on the Art of Writing (3rd. Edition). Longman, New York: 2010

2. Purdue Online Writing Lab

<http://owl.english.purdue.edu/owl/>

3. Zinsser, William. On Writing Well, 30th Anniversary Edition: The classic Guide to Writing Nonfiction. Harper Collins, London: 2006.

4. A Research Guide for Students.

<http://www.aresearchguide.com/styleguides.html>

NB: You may find some of the above assets helpful. The commercial products are provided for information only; none are specifically endorsed or promoted.

References

- American Philosophical Association (1990). Critical Thinking: A Statement of Expert Consensus for Purposes of Educational Assessment and Instruction. "The Delphi Report," Committee on Pre-College Philosophy. (ERIC Doc. No. ED 315 423).
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- Krathwohl, D.R. (1988) (3rd ed.) *How to prepare a research proposal. Guidelines for funding and dissertations in the social and behavioural sciences*. Syracuse, New York: Syracuse University Press.
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